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Special Article - The Victorian Dairy Industry

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Introduction

Victoria is the largest producer of dairy products in Australia. In 1996-97, 62% of milk and about 85% of dairy exports came from Victoria and were valued at \$1.55 billion. The majority of exports are in the form of bulk commodities of skim milk powder, butter and cheese. Victoria's export success is due in large part to the low cost of milk production resulting in the industry being internationally competitive. Dairy products are the biggest component of the Victorian food industry.

Victoria has some comparative advantages in dairy farming over many other parts of the world. The temperate climate in this area enables the production of milk using pasture grown under natural rainfall in the south west, most of Gippsland and the river valleys of the North East or with relatively low priced irrigation water in the Murray, Goulburn and Macalister irrigation systems. This pasture based production system is further enhanced and complimented by the availability of cheap grain.

The typical Victorian dairy farm is a family operated and managed enterprise, milking about 150 cows on 80 to 100 hectares producing about 750,000 litres of milk per annum. The farm has a seasonally calving herd, calving down during June to September and each year raising about 30 replacement heifers on the farm. The majority of hay and silage is produced on the farm and each cow is fed about 0.8 tonnes of grain or pellets in the bail. Farm labour is primarily provided by the family who assist with the milking, calving down, calf raising, hay and silage making.

Development

The development of the Victorian dairy industry began in 1834 when Edward Henty arrived at Portland with the first dairy cows. The south west had high rainfall and good soil and was suitable for successful farming. In the years until 1860, exploration was the key feature of agricultural development. Gippsland was explored and found to be a rich agricultural area and its unlocking began with the construction of stock routes after 1861. Gold mining had attracted immigrants to Victoria after 1851. Ten years later when the diggings had become less lucrative for many, interest in agriculture and the settlement of farms began in earnest. Between 1860 and 1880, land under cultivation in Victoria increased from 387,282 acres to 1,548,282 acres. While this included settlement in the north of the State, a less reliable water supply saw the most significant development in that area occur after the provision of irrigation, much of which appeared during the Depression of the 1930's.

The dairy industry of the 1800's had twenty years of exploration and twenty years of settlement, and the next twenty years was characterised by the development of technology, export markets

and administrative and regulatory arrangements. Significant technological advances were the introduction of the centrifugal cream separator and refrigeration in the ten years between 1880 and 1890. During the 1890's State Governments appointed experts to advise farmers and encourage the export of butter to the United Kingdom. In 1888-9, 31 butter factories were registered and by 1895 there were 174 factories and 284 creameries. In the same five years, butter production increased by 253%. By 1900 a sound dairy industry had been established and the perishability of the product had been overcome by technology. Exports of butter to the United Kingdom began and remained our major export market until the early 1970's.

The amount of time taken to milk cows by hand and the availability of labour limited the size of dairy farms. Milking machines had been patented as early as 1836 but it was not until the late 1930's that there was broader adoption in Victoria due to the recovery from the Depression and distribution electricity to farms. Developments in milking technology, including capacity of machinery, refrigerated storage tanks and improved shed design have enabled huge changes in the size of farms. Table 1 shows the change in average herd size. Today there are farms milking as many as 1,200 cows through one rotary shed.

TABLE 1: AVERAGE DAIRY HERD SIZE, VICTORIA

Year	No. cows per herd
1950	18
1960	24
1970	50
1980	91
1986	96
1990	110
1995	136
1996	142

Source: Australian Dairy Corporation

The Second World War marked a change in the dairy industry. Government assistance promoted land development and irrigation schemes in Victoria's dairy regions and soldier settlement schemes were instituted for returned soldiers. By the 1950's Victoria was the dominant dairy manufacturing State and the industry had become a significant sector of the Victorian economy.

A critical period for the dairy industry was in 1973 when the United Kingdom joined the European Economic Community and access to European markets was cut. The industry had to find new markets and improve its international competitiveness. There was a significant rationalisation in the industry (note the large drop in numbers of farms between 1970 and 1975 shown in table 2). There was also a major change in the product mix over this period. Butter production was reduced by over 60% while cheese production more than doubled. Australia had to find new markets for its dairy products. Asia offered great opportunities and Japan became our most important market for dairy products. Currently over 70% of dairy exports go to Asia and South East Asia.

TABLE 2: NUMBER OF FARMS, AS AT 30 JUNE

Year	NSW	Vic.	Qld	SA	WA	Tas.	Aust.
1950	16,685	27,975	21,475	7,751	4,432	4,161	82,479
1960	15,430	26,004	17,960	6,600	4,502	4,352	74,848
1966	12,230	23,430	12,560	5,450	2,283	2,979	58,932
1970	8,733	19,803	8,931	4,111	1,650	3,232	46,460
1975	4,805	14,920	4,622	3,064	961	2,229	30,601
1980	3,601	11,467	3,052	1,730	622	1,522	21,994
1985	2,838	10,850	2,544	1,300	626	1,184	19,342
1990	2,220	8,840	1,970	969	496	901	15,396
1995	1,911	8,379	1,746	819	479	832	14,166
1996	1,853	8,275	1,693	791	457	819	13,888

Source: Australian Dairy Corporation

Reliable fresh milk supplies

Milk has two primary uses, firstly for the fresh liquid milk market and secondly for the production of manufactured products (such as cheese and butter) for domestic and export markets.

In 1933 the Victorian Milk Board was formed under State legislation with the objectives of ensuring quality control and a regular supply of fresh milk to the community. The price farmers received for their milk and the price consumers paid was also controlled.

There have been numerous changes since the establishment of the original Victorian Milk Board. Currently the Victorian Dairy Industry Authority is responsible for the regulation of the liquid milk market including promotion, pricing, distribution and quality. The regulation of retail pricing, distribution and sourcing of liquid milk has been progressively removed. Full deregulation of the liquid milk market is expected to proceed under national competition policy requirements, and is likely to be completed by the turn of the century. The expected increase in competition from deregulation should result in generally lower prices to consumers, increased diversity of products and better utilisation of industry infrastructure and plant, making for an even more efficient industry.

Maintaining the competitive edge

Research, extension and quality assurance services have played an important part in the development of the dairy industry. Increases in productivity, responsible use of the natural resource base and ensuring that milk produced is safe and free of contaminants, are the focus of government services to the Victorian dairy industry.

The increases in production and the international competitiveness of the industry are an indication of the level of uptake of improved farming practices by dairy farmers and improved genetic stock of dairy cows.

TABLE 3: WHOLE MILK PRODUCTION

Year ended 30 June	NSW	Vic.	Qld	SA	WA	Tas.	Aust.
1950	1,420	2,133	1,278	406	225	168	5,630
1960	1,589	2,720	1,148	357	262	319	6,395
1970	1,418	4,057	870	483	254	469	7,551
1980	907	3,151	508	329	222	315	5,432
1990	879	3,787	629	356	267	343	6,263
1995	1,087	5,114	740	485	343	437	8,206
1996	1,114	5,482	751	513	342	514	8,716

Source: Australian Dairy Corporation

The introduction of artificial insemination in the 1950's allowed dairy farmers to progressively improve the production potential of their herds. The Australian Dairy Herd Improvement Scheme which began in 1982 has enabled more accurate evaluation of the breeding potential of dairy cattle and has been able to select cattle with traits that better match the needs of industry such as increased protein levels in milk. Combined with improved pasture species, increased use of fertiliser, improved pasture management and strategic grain feeding, the Victorian dairy industry has significantly improved on-farm productivity. Table 4 shows that the average annual per cow production has more than doubled since 1960.

TABLE 4: AVERAGE ANNUAL MILK PRODUCTION PER COW, AUSTRALIA[

Year ended 30 June	Litres
1950	1,746
1960	1,959
1970	2,650
1980	2,848
1985	3,337
1990	3,781
1995	4,481

Source: Australian Dairy Corporation

'Target 10', which is the extension component of the Victorian dairy industry development program, has played an important role over the last five years in demonstrating to farmers the benefits of changing farming practices to improve profitability. Target 10 is an informal partnership between industry, government and agribusiness. The Victorian dairy industry is reliant upon a relatively low cost of milk production as a major source of competitive advantage with the rest of the world. This being the case, the Target 10 project initially set out to increase the utilisation of pasture by 10% on half of Victoria's 8,000 dairy farms within five years. Over the first four years of the program, approximately 35% of farmers have participated in the grazing management program. The project has since been broadened to cover other priority farming issues including animal nutrition, farm development as well as soils and fertiliser management.

Manufactured dairy products

The manufacturing segment of the dairy industry has undergone substantial structural change over the past twenty-five years, particularly so in the last ten years enabling the industry to be internationally competitive. Changes have occurred in both the number and size of firms and in the product mix. Mergers and takeovers have featured in structural adjustment, and have resulted in greater concentration of ownership in the industry. The effect has been factory closures and increased investment in new plant and equipment at the remaining factories. Milk processing has made major technological progress in this time with advances such as large scale continuous cheesemaking plants, large capacity spray driers, ultrafiltration/reverse osmosis plants and ultra heat treatment of liquid milk. New technology has enabled the production of milk tailored to consumer requirements such as modified lactose, fat and calcium contents. The proportions of milk used for manufacturing are cheese 36%, skim milk powder and butter 40%, whole milk powder 14%, casein/butter 3% and other products 6%.

Future prospects

Industry forecasts for the dairy industry are confident due to anticipated gains from international trade reforms and continued demand from Asian markets. Strong competition in these markets will be maintained which will force farmers and processors to continue to achieve productivity gains. Victorian exports have concentrated on producing bulk commodities (cheese, butter, milk powder). In the medium term, processors are likely to shift production to products tailored to meet the specific needs of end-users.

On current trends, Victorian milk production is expected to increase from 5,482 ML to 10,800 ML in 2010 (70% of Australia's production). The number of farms is expected to decline from 8,275 to about 7,000 and the average herd size will increase from 145 cows to 250 cows. Annual production per cow will increase from about 4,745 litres to 5,800 litres. Eighty per cent of the Victorian herd will be artificially bred and 50% of herds will have automatic milk recording. Dairy farm numbers will generally contract with most concentration in West Gippsland due to residential and other land use pressures.

The image of Victorian dairy products and other food will play an important role in securing overseas and local markets. Community concerns over 'clean and green' production will reinforce the commitment of the dairy industry to produce milk in an environmentally responsible way. The dairy industry will continue to be a major contributor to the Victorian economy through increased export income and employment and profits to the rural sector.

Source: Primary Industries Division, Department of Natural Resources and Environment, Victoria

References

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